Remarks

No new matter is added by way of this amendment. Claims 28 and 38 have been canceled without prejudice or disclaimer, claims 1-4, 6-27, 29, 30, 33-37, 39, 41 and 42 have been amended, and claims 45-48 have been added. After entry of the foregoing amendments, claims 1-27, 29-37 and 39-48 will be pending in the application, with claims 1, 12, 17, 24-27 and 29-31 being the independent claims.
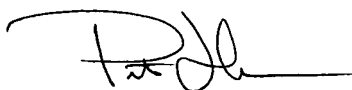
Claims 1-4, 6-27, 29, 30, 33-37, 39, 41 and 42 have been amended only in order to correct obvious typographical errors and/or to bring the claim language into compliance with U.S. patent practice. These amendments do not narrow the scope of the claims, in that the embodiments intended by Applicants to be included within the scope of these claims remains the same. Support for new claims 45-48 can be found throughout the specification, and in the claims as originally filed, *e.g.*, in original claims 19 and 20. These changes are believed to introduce no new matter, and their entry is respectfully requested.

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Summary

It is respectfully believed that this application is now in condition for examination. Early notice to this effect is respectfully requested. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

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Date: March 27, 2002

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Version with Markings to Show Changes Made

In the Specification:

A paragraph/section was inserted at page 1, after the Title of the Invention.

In the Claims:

Claims 28 and 38 have been canceled.

The claims were amended as follows:

1. (Once amended)   A method for generating a repertory of nucleic acids of *tuf, fus, atpD* and/or *recA* genes from which are derived probes or primers, or both, useful for the detection of one, more than one related microorganisms, or substantially all microorganisms of a group selected from algae, archaea, bacteria, fungi and parasites, which comprises [the step of:] amplifying the nucleic acids of a plurality of determined algal, archaeal, bacterial, fungal and parasitical species with any combination of the primer pairs defined in SEQ ID NOs.:

for generating a *tuf/fus* repertory: 543, 556-561, 636-639, 643-655, 658-661, 664, 694, 696, 697, 812, 813, 815, 911-917, 1221-1229, 1974-1984, 1999-2003 and 2282-2285;

for generating a *atpD* repertory: 562-574, 640-642, 681-683, 699, 700, 708, 814, 1203-1207, 1212 and 1213; and

for generating a *recA* repertory: 919-922, 935-938, 1605 and 1606 [556-574, 636-655, 664, 681-683, 694, 696-697, 699-700, 708, 812-815, 911-917, 919-922, 935-938, 1203-1207, 1212-1213, 1221-1229, 1605-1606, 1974-1984, 1999- 2003, 2282-2285].

2. (Once amended)   A method for generating a repertory of nucleic acid sequences, which comprises the steps of:

    (a)   reproducing the method of claim 45; [claim 1,] and
[adding the step of:]
    (b)   sequencing said nucleic acids.

3. (Once amended)   A method for generating sequences of probes, or primers, or both, useful for the detection of one, more than one related microorganisms, or substantially all microorganisms of a group selected from algae, archaea, bacteria, fungi and parasites, which comprises the steps of:

    (a)   reproducing the method of claim 2;[, and]
[adding the steps of:]
    (b)   aligning a subset of nucleic acid sequences of said repertory;[,]

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(c)   locating nucleic acid stretches that are present in the nucleic acids of strains or representatives of said one, more than one related microorganisms, or substantially all microorganisms of said group, and not present in the nucleic acid sequences of other microorganisms:[,] and

(d)   deriving consensus nucleic acid sequences useful as probes or primers from said stretches.

4. (Once amended)   A bank of nucleic acids comprising the repertory of nucleic acids obtained from the method of claim 45 [claim 1].

6. (Once amended)   A method for generating sequences of probes, or primers, or both, useful for the detection of one, more than one related microorganisms, or substantially all microorganisms of a group selected from algae, archaea, bacteria, fungi and parasites, which comprises the steps of:[.]

(a)   aligning a subset of nucleic acid sequences of the bank as defined in claim 5:[,]

(b)   locating nucleic acid sequence stretches that are present in the nucleic acid sequences of strains or representatives of said one, more than one related microorganisms, or substantially all microorganisms of said group, and not present in the nucleic acid sequences of other microorganisms:[,] and

(c)   deriving consensus nucleic acid sequences useful as probes or primers from said stretches.

7. (Once amended)   A method for generating probes, or primers or both, useful for the detection of one, more than one related microorganisms, or substantially all microorganisms of a group selected from algae, archaea, bacteria, fungi and parasites, which comprises the steps of:

(a)   reproducing the method of claim 3: and [or 6, and adding the step of:]

(b)   synthesising said probes or primers upon the nucleic acid sequences thereof.

8. (Once amended)   An isolated [A] nucleic acid used for universal detection of any one of alga, archaeon, bacterium, fungus and parasite which is obtained from the method of claim 7.

9. (Once amended)   An isolated [A] nucleic acid used for universal detection as set forth in claim 8, which has a nucleic acid sequence of at least 12 nucleotides capable of hybridizing with said any one of alga, archaeon, bacterium, fungus and parasite and with any one of SEQ ID NOs.: 543, 556-574, 636-655, 658-661, 664, 681-683, 694, 696, 697, 699, 700, 708, 812-815, 911-917, 919-922, 935-938, 1203-1207, 1212-1213, 1221-1229, 1605-1606, 1974-1984, 1999-2003 and[,] 2282-2285.

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10. (Once amended) <u>An isolated</u> [A] nucleic acid used for the specific and ubiquitous detection and for identification of any one of a algal, archaeal, bacterial, fungal and <u>parasitical</u> [parasitital] species, genus, family and group, which is obtained from the method of claim 7.

11. (Once amended) <u>An isolated</u> [A] nucleic acid as set forth in claim 10 having any one of the nucleotide sequences which are defined in SEQ ID NOs.:

539 <u>and</u>[,]	
540	for the detection and/or identification of *Mycobacteriaceae* family;
541, 542, 544	
<u>and</u>[,] 2121	for the detection and/or identification of Pseudomonads group;
545 <u>and</u>[,]	
546	for the detection and/or identification of *Corynebacterium* sp.;
547, 548	
<u>and</u>[,] 1202	for the detection and/or identification of *Streptococcus* sp.;
549, 550, 582, 583, 625, 626, 627, 628	
<u>and</u>[,] 1199	for the detection and/or identification of *Streptococcus agalactiae*;
551, 552, 2166, 2173, 2174, 2175, 2176, 2177, 2178 <u>and</u>[,]	
2179	for the detection and/or identification of *Neisseria gonorrhoeae*;
553, 575, 605, 606, 707, 1175 <u>and</u>[,]	
1176	for the detection and/or identification of *Staphylococcus* sp.;
554, 555	
<u>and</u>[,] 2213	for the detection and/or identification of *Chlamydia trachomatis*;
576, 631, 632, 633, 634, 635, 1163, 1164, 1167, 2076, 2108 <u>and</u>[,]	
2109	for the detection and/or identification of *Candida* sp.;
577, 1156, 1160 <u>and</u>	
2073	for the detection and/or identification of *Candida albicans*;
578, 1166, 1168 <u>and</u>[,]	
2074	for the detection and/or identification of *Candida dubliniensis*;
579 <u>and</u>[,]	
2168	for the detection and/or identification of *Escherichia coli*;

580, 603,
1174, 1236,
1238, 2289,
2290 <u>and</u>[,]
2291   for the detection and/or identification of *Enterococcus faecalis*;

581   for the detection and/or identification of *Haemophilus influenzae*;

584, 585, 586,
587, 588,
1232, 1234
<u>and</u>[,] 2186   for the detection and/or identification of *Staphylococcus aureus*;

589, 590, 591,
592 <u>and</u>[,]
593   for the detection and/or identification of *Staphylococcus epidermidis*;

594 <u>and</u>[,]
595   for the detection and/or identification of *Staphylococcus haemolyticus*;

596, 597
<u>and</u>[,] 598   for the detection and/or identification of *Staphylococcus hominis*;

599, 600, 601,
695, 1208
<u>and</u>[,] 1209   for the detection and/or identification of *Staphylococcus saprophyticus*;

602, 1235,
1237, 1696,
1697, 1698,
1699, 1700,
1701, 2286
<u>and</u>[,] 2287   for the detection and/or identification of *Enterococcus faecium*;

604   for the detection and/or identification of *Enterococcus gallinarum*;

620 <u>and</u>[,]
1122   for the detection and/or identification of *Enterococcus casseliflavus, E. flavescens* and *E. gallinarum*;

629, 630,
2085, 2086,
2087, 2088,
2089, 2090,
2091 <u>and</u>[,]
2092   for the detection and/or identification of *Chlamydia pneumoniae*;

636, 637, 638,
639, 640, 641
<u>and</u>[,] 642   for the detection and/or identification of at least the following: *Abiotrophia adiacens, Abiotrophia defectiva, Acinetobacter baumannii, Acinetobacter lwoffi, Aerococcus viridans, Bacillus anthracis, Bacillus cereus, Bacillus subtilis, Brucella abortus, Burkholderia cepacia, Citrobacter diversus, Citrobacter freundii, Enterobacter aerogenes, Enterobacter agglomerans, Enterobacter cloacae, Enterococcus avium, Enterococcus casseliflavus, Enterococcus dispar, Enterococcus durans,*

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Enterococcus faecalis, Enterococcus faecium, Enterococcus flavescens, Enterococcus gallinarum, Enterococcus mundtii, Enterococcus raffinosus, Enterococcus solitarius, Escherichia coli, Gemella morbillorum, Haemophilus ducreyi, Haemophilus haemolyticus, Haemophilus influenzae, Haemophilus parahaemolyticus, Haemophilus parainfluenzae, Hafnia alvei, Kingella kingae, Klebsiella oxytoca, Klebsiella pneumoniae, Legionella pneumophila, Megamonas hypermegale, Moraxella atlantae, Moraxella catarrhalis, Morganella morganii, Neisseria gonorrheae, Neisseria meningitidis, Pasteurella aerogenes, Pasteurella multocida, Peptostreptococcus magnus, Proteus mirabilis, Providencia alcalifaciens, Providencia rettgeri, Providencia rustigianii, Providencia stuartii, Pseudomonas aeruginosa, Pseudomonas fluorescens, Pseudomonas stutzeri, Salmonella bongori, Salmonella choleraesuis, Salmonella enteritidis, Salmonella gallinarum, Salmonella typhimurium, Serratia liquefaciens, Serratia marcescens, Shigella flexneri, Shigella sonnei, Staphylococcus aureus, Staphylococcus capitis Staphylococcus epidermidis, Staphylococcus haemolyticus, Staphylococcus hominis, Staphylococcus lugdunensis, Staphylococcus saprophyticus, Staphylococcus simulans, Staphylococcus warneri, Stenotrophomonas maltophilia, Streptococcus acidominimus, Streptococcus agalactiae, Streptococcus anginosus, Streptococcus bovis, Streptococcus constellatus, Streptococcus cricetus, Streptococcus cristatus, Streptococcus dysgalactiae, Streptococcus equi, Streptococcus ferus, Streptococcus gordonii, Streptococcus intermedius, Streptococcus macacae, Streptococcus mitis, Streptococcus mutans, Streptococcus oralis, Streptococcus parasanguinis, Streptococcus parauberis, Streptococcus pneumoniae, Streptococcus pyogenes, Streptococcus ratti, Streptococcus salivarius, Streptococcus sanguinis, Streptococcus sobrinus, Streptococcus uberis, Streptococcus vestibularis, Vibrio cholerae, Yersinia enterocolitica, Yersinia pestis, Yersinia pseudotuberculosis;[.]

646, 647 and 648	for the detection and/or identification of members of the *Actinomycetae* class;
649, 650 and 651	for the detection and/or identification of members of the *Cytophaga-Flexibacter-Bacteroides* (CFB) phylum;
656, 657, 271, 1136 and[,] 1137	for the detection and/or identification of *Enterococcus* sp.;
701 and[,] 702	for the detection and/or identification of *Leishmania* sp.;

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703, 704, 705, 706 and[,] 793	for the detection and/or identification of *Entamoeba* sp.;
794 and[,] 795	for the detection and/or identification of *Trypanosoma cruzi*;
796, 797, 808, 809, 810 and[,] 811	for the detection and/or identification of *Clostridium* sp.;
798, 799, 800, 801, 802, 803, 804, 805, 806 and[,] 807	for the detection and/or identification of *Cryptosporidium parvum*;
816, 817, 818 and[,] 819	for the detection and/or identification of *Giardia* sp.;
820, 821 and[,] 822	for the detection and/or identification of *Trypanosoma brucei*;
823 and[,] 824	for the detection and/or identification of *Trypanosoma* sp.;
825 and[,] 826	for the detection and/or identification of *Bordetella* sp.;
923, 924, 925, 926, 927 and[,] 928	for the detection and/or identification of *Trypanosomatidae* family;
933 and[,] 934	for the detection and/or identification of <u>members of the</u> *Enterobacteriaceae* group;
994, 995, 996, 997, 998, 999, 1000, 1001, 1200, 1210 and[,] 1211	for the detection and/or identification of *Streptococcus pyogenes*;
1157, 2079 and[,] 2118	for the detection and/or identification of *Candida parapsilosis*;
1158, 1159, 2078, 2110 and[,] 2111	for the detection and/or identification of *Candida glabrata*;
1160, 2077, 2119 and[,] 2120	for the detection and/or identification of *Candida tropicalis*;
1161, 2075, 2112, 2113	

and[,] 2114	for the detection and/or identification of *Candida krusei*;
1162	for the detection and/or identification of *Candida guilliermondii*;
1162, 2080, 2115, 2116 and[,] 2117	for the detection and/or identification of *Candida lusitaniae*;
1165	for the detection and/or identification of *Candida zeylanoides*;
1201	for the detection and/or identification of *Streptococcus pneumoniae*;
1233	for the detection and/or identification of *Staphylococcus* sp. other than *S. aureus*;
1329, 1330, 1331, 1332, 2167 and[,] 2281	for the detection and/or identification of *Klebsiella pneumoniae*;
1661 and[,] 1665	for the detection and/or identification of *Escherichia coli* and *Shigella* sp.;
1690, 1691, 1692, 1693 and[,] 2169	for the detection and/or identification of *Acinetobacter baumanii*;
1694, 1695 and[,] 2122	for the detection and/or identification of *Pseudomonas aeruginosa*;
1971, 1972 and[,] 1973	for the detection and/or identification of *Cryptococcus sp.*;
2081, 2082 and[,] 2083	for the detection and/or identification of *Legionella sp.*;
2084	for the detection and/or identification of *Legionella pneumophila*;
2093, 2094, 2095 and[,] 2096	for the detection and/or identification of *Mycoplasma pneumoniae*;
2106 and[,] 2107	for the detection and/or identification of *Cryptococcus neoformans*;
2131, 2132 and[,] 2133	for the detection and/or identification of *Campylobacter jejuni and C. coli*;
2134, 2135 and[,] 2136	for the detection and/or identification of *Bacteroides fragilis*;
2170	for the detection and/or identification of *Abiotrophia adiacens*;
2171	for the detection and/or identification of *Gemella* sp.;
2172	for the detection and/or identification of *Enterococcus* sp., *Gemella* sp.,

A. adiacens;

2180, 2181
and[,] 2182   for the detection and/or identification of *Bordetella pertussis*; and[.]

2186   for the detection and/or identification of *Staphylococcus aureus*.

12. (Once amended) A method for detecting the presence in a test sample of a microorganism that is an alga, archaeum, bacterium, fungus or parasite, which comprises:

(a)   putting in contact any test sample *tuf* or *atpD* or *recA* nucleic acids and nucleic acid primers and/or probes, said primers and/or probes having been selected to be sufficiently complementary to hybridize to one or more *tuf* or *atpD* or *recA* nucleic acids that are specific to said group of microorganisms;

(b)   allowing the primers and/or probes and any test sample *tuf* or *atpD* or *recA* nucleic acids to hybridize under specified conditions such as said primers and/or probes hybridize to the *tuf* or *atpD* or *recA* nucleic acids of said microorganism and does not detectably hybridize to *tuf* or *atpD* or *recA* sequences from other microorganisms; and,

(c)   testing for hybridization of said primers and/or probes to any test sample *tuf* or *atpD* or *recA* nucleic acids.

13. (Once amended) The method of claim 12 wherein (c) [c)] is based on a nucleic acid target amplification method.

14. (Once amended) The method of claim 12 wherein (c) [c)] is based on a signal amplification method.

15. (Once amended) The method of claim 12 [any one of claims 12 to 14] wherein said primers and/or probes that are sufficiently complementary are perfectly complementary.

16. (Once amended) The method of claim 12 [any one of claims 12 to 14] wherein said primers and/or probes that are sufficiently complementary are not perfectly complementary.

17. (Once amended) A method for the specific detection and/or identification of a microorganism that is an algal, archaeal, bacterial, fungal or parasitical species, genus, family or group in any sample, using a panel of probes or amplification primers or both, each individual probe or primer being derived from a nucleic acid which has a nucleotide sequence of at least 12 nucleotides in length capable of hybridizing with the nucleic acids of said microorganism and with a nucleic acid having any one of the nucleotide sequences defined in SEQ ID NOs.:

539 and[,]
540   for the detection and/or identification of *Mycobacteriaceae* family;

541, 542, 544
and[,] 2121   for the detection and/or identification of Pseudomonads group;

545 and[,]
546   for the detection and/or identification of *Corynebacterium* sp.;

547, 548
and[,] 1202   for the detection and/or identification of *Streptococcus* sp.;

549, 550, 582,
583, 625, 626,
627, 628
and[,] 1199   for the detection and/or identification of *Streptococcus agalactiae*;

551, 552,
2166, 2173,
2174, 2175,
2176, 2177,
2178 and[,]
2179   for the detection and/or identification of *Neisseria gonorrhoeae*;

553, 575, 605,
606, 707,
1175 and[,]
1176   for the detection and/or identification of *Staphylococcus* sp.;

554, 555
and[,] 2213   for the detection and/or identification of *Chlamydia trachomatis*;

576, 631, 632,
633, 634, 635,
1163, 1164,
1167, 2076,
2108 and[,]
2109   for the detection and/or identification of *Candida* sp.;

577, 1156,
1160 and
2073   for the detection and/or identification of *Candida albicans*;

578, 1166,
1168 and[,]
2074   for the detection and/or identification of *Candida dubliniensis*;

579 and[,]
2168   for the detection and/or identification of *Escherichia coli*;

580, 603,
1174, 1236,
1238, 2289,
2290 and[,]
2291   for the detection and/or identification of *Enterococcus faecalis*;

581   for the detection and/or identification of *Haemophilus influenzae*;

584, 585, 586,

587, 588,
1232, 1234
and[,] 2186   for the detection and/or identification of *Staphylococcus aureus*;

589, 590, 591,
592 and[,]
593   for the detection and/or identification of *Staphylococcus epidermidis*;

594 and[,]
595   for the detection and/or identification of *Staphylococcus haemolyticus*;

596, 597
and[,] 598   for the detection and/or identification of *Staphylococcus hominis*;

599, 600, 601,
695, 1208
and[,] 1209   for the detection and/or identification of *Staphylococcus saprophyticus*;

602, 1235,
1237, 1696,
1697, 1698,
1699, 1700,
1701, 2286
and[,] 2287   for the detection and/or identification of *Enterococcus faecium*;
604   for the detection and/or identification of *Enterococcus gallinarum*;

620 and[,]
1122   for the detection and/or identification of *Enterococcus casseliflavus, E.*
flavescens and *E. gallinarum*;

629, 630,
2085, 2086,
2087, 2088,
2089, 2090,
2091 and[,]
2092   for the detection and/or identification of *Chlamydia pneumoniae*;

636, 637, 638,
639, 640, 641
and[,] 642   for the detection and/or identification of at least the following:
Abiotrophia adiacens, Abiotrophia defectiva, Acinetobacter baumannii,
Acinetobacter lwoffi, Aerococcus viridans, Bacillus anthracis, Bacillus
cereus, Bacillus subtilis, Brucella abortus, Burkholderia cepacia,
Citrobacter diversus, Citrobacter freundii, Enterobacter aerogenes,
Enterobacter agglomerans, Enterobacter cloacae, Enterococcus avium,
Enterococcus casseliflavus, Enterococcus dispar, Enterococcus durans,
Enterococcus faecalis, Enterococcus faecium, Enterococcus flavescens,
Enterococcus gallinarum, Enterococcus mundtii, Enterococcus raffinosus,
Enterococcus solitarius, Escherichia coli, Gemella morbillorum,
Haemophilus ducreyi, Haemophilus haemolyticus, Haemophilus
influenzae, Haemophilus parahaemolyticus, Haemophilus parainfluenzae,
Hafnia alvei, Kingella kingae, Klebsiella oxytoca, Klebsiella pneumoniae,

Legionella pneumophila, Megamonas hypermegale, Moraxella atlantae, Moraxella catarrhalis, Morganella morganii, Neisseria gonorrheae, Neisseria meningitidis, Pasteurella aerogenes, Pasteurella multocida, Peptostreptococcus magnus, Proteus mirabilis, Providencia alcalifaciens, Providencia rettgeri, Providencia rustigianii, Providencia stuartii, Pseudomonas aeruginosa, Pseudomonas fluorescens, Pseudomonas stutzeri, Salmonella bongori, Salmonella choleraesuis, Salmonella enteritidis, Salmonella gallinarum, Salmonella typhimurium, Serratia liquefaciens, Serratia marcescens, Shigella flexneri, Shigella sonnei, Staphylococcus aureus, Staphylococcus capitis Staphylococcus epidermidis, Staphylococcus haemolyticus, Staphylococcus hominis, Staphylococcus lugdunensis, Staphylococcus saprophyticus, Staphylococcus simulans, Staphylococcus warneri, Stenotrophomonas
maltophilia, Streptococcus acidominimus, Streptococcus agalactiae, Streptococcus anginosus, Streptococcus bovis, Streptococcus constellatus, Streptococcus cricetus, Streptococcus cristatus, Streptococcus dysgalactiae, Streptococcus equi, Streptococcus ferus, Streptococcus gordonii, Streptococcus intermedius, Streptococcus macacae, Streptococcus mitis, Streptococcus mutans, Streptococcus oralis, Streptococcus parasanguinis, Streptococcus parauberis, Streptococcus pneumoniae, Streptococcus pyogenes, Streptococcus ratti, Streptococcus salivarius, Streptococcus sanguinis, Streptococcus sobrinus, Streptococcus uberis, Streptococcus vestibularis, Vibrio cholerae, Yersinia enterocolitica, Yersinia pestis, Yersinia pseudotuberculosis;[.]

646, 647 and 648	for the detection and/or identification of members of the *Actinomycetae* class;
649, 650 and 651	for the detection and/or identification of members of the *Cytophaga-Flexibacter-Bacteroides* (CFB) phylum;
656, 657, 271, 1136 and[,] 1137	for the detection and/or identification of *Enterococcus* sp.;
701 and[,] 702	for the detection and/or identification of *Leishmania* sp.;
703, 704, 705, 706 and[,] 793	for the detection and/or identification of *Entamoeba* sp.;
794 and[,] 795	for the detection and/or identification of *Trypanosoma cruzi*;
796, 797, 808, 809, 810 and[,] 811	for the detection and/or identification of *Clostridium* sp.;

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798, 799, 800, 801, 802, 803, 804, 805, 806 and[,] 807	for the detection and/or identification of *Cryptosporidium parvum*;
816, 817, 818 and[,] 819	for the detection and/or identification of *Giardia* sp.;
820, 821 and[,] 822	for the detection and/or identification of *Trypanosoma brucei*;
823 and[,] 824	for the detection and/or identification of *Trypanosoma* sp.;
825 and[,] 826	for the detection and/or identification of *Bordetella* sp.;
923, 924, 925, 926, 927 and[,] 928	for the detection and/or identification of *Trypanosomatidae* family;
933 and[,] 934	for the detection and/or identification of <u>members of the</u> *Enterobacteriaceae* group;
994, 995, 996, 997, 998, 999, 1000, 1001, 1200, 1210 and[,] 1211	for the detection and/or identification of *Streptococcus pyogenes*;
1157, 2079 and[,] 2118	for the detection and/or identification of *Candida parapsilosis*;
1158, 1159, 2078, 2110 and[,] 2111	for the detection and/or identification of *Candida glabrata*;
1160, 2077, 2119 and[,] 2120	for the detection and/or identification of *Candida tropicalis*;
1161, 2075, 2112, 2113 and[,] 2114	for the detection and/or identification of *Candida krusei*;
1162	for the detection and/or identification of *Candida guilliermondii*;
1162, 2080, 2115, 2116 and[,] 2117	for the detection and/or identification of *Candida lusitaniae*;
1165	for the detection and/or identification of *Candida zeylanoides*;
1201	for the detection and/or identification of *Streptococcus pneumoniae*;
1233	for the detection and/or identification of *Staphylococcus* sp. other than *S. aureus*;

1329, 1330,
1331, 1332,
2167 and[,]
2281   for the detection and/or identification of *Klebsiella pneumoniae*;
1661 and[,]
1665   for the detection and/or identification of *Escherichia coli* and
       Shigella sp.;
1690, 1691,
1692, 1693
and[,] 2169   for the detection and/or identification of *Acinetobacter baumanii*;
1694, 1695
and[,] 2122   for the detection and/or identification of *Pseudomonas aeruginosa*;
1971, 1972
and[,] 1973   for the detection and/or identification of *Cryptococcus sp.*;
2081, 2082
and[,] 2083   for the detection and/or identification of *Legionella sp.*;
2084   for the detection and/or identification of *Legionella pneumophila*;
2093, 2094,
2095 and[,]
2096   for the detection and/or identification of *Mycoplasma pneumoniae*;
2106 and[,]
2107   for the detection and/or identification of *Cryptococcus neoformans*;
2131, 2132
and[,] 2133   for the detection and/or identification of *Campylobacter jejuni and C.*
       coli;
2134, 2135
and[,] 2136   for the detection and/or identification of *Bacteroides fragilis*;
2170   for the detection and/or identification of *Abiotrophia adiacens*;
2171   for the detection and/or identification of *Gemella* sp.;
2172   for the detection and/or identification of *Enterococcus* sp., *Gemella* sp.,
       A. adiacens;
2180, 2181
and[,] 2182   for the detection and/or identification of *Bordetella pertussis*; and[,]
2186   for the detection and/or identification of *Staphylococcus aureus*,

    said method comprising [the step of] contacting the nucleic acids of the sample with said primers or probes under suitable conditions of hybridization or of amplification and detecting the presence of hybridized probes or amplified products as an indication of the presence of said specific algal, archaeal, bacterial, fungal or parasitical species, genus, family or group.

    18. (Once amended) A method for the universal detection of any bacterium, fungus or parasite in a sample, using a panel of probes or amplification primers or both, each individual probe or primer being derived from a nucleic acid as defined in claim 8 [claims 8 or 9], the method comprising [the step of] contacting the nucleic acids of the sample with

said primers or probes under suitable conditions of hybridization or of amplification and detecting the presence of any alga, archaeon, bacterium, fungus or parasite.

19. (Once amended) A method as set forth in claim 17 [or 18], which further comprises probes or primers, or both, for the detection of at least one antimicrobial agent resistance gene.

20. (Once amended) A method as set forth in claim 17[, 18 or 19], which further comprises probes or primers, or both, for the detection of at least one toxin gene.

21. (Once amended) A method as set forth in <u>claim 48</u> [claim 19 or 20], wherein the probes or primers for the detection of said antimicrobial agent resistance gene or toxin gene have at least 12 nucleotides in length capable of hybridizing with an antimicrobial agent resistance gene and/or toxin gene selected from SEQ ID NOs.:

1078, 1079
<u>and</u>[,] 1085   for the detection and/or identification of the *E. coli* Shiga-like toxin 2 (*stx₂*) gene;

1080, 1081,
1084 <u>and</u>[,]
2012   for the detection and/or identification of the *E. coli* Shiga-like toxin 1 (*stx₁*) gene;

1082 <u>and</u>[,]
1083   for the detection and/or identification of *E. coli* Shiga-like toxins 1 and 2 (*stx*) genes;

1086, 1087,
1088, 1089,
1090, 1091,
1092, 1170,
1239, 1240
<u>and</u>[,] 2292   for the detection and/or identification of the *vanA* resistance gene;

1095, 1096,
1171, 1241,
2294 <u>and</u>[,]
2295   for the detection and/or identification of the *vanB* resistance gene;

1111, 1112,
1113, 1114,
1115, 1116,
1118, 1119,
1120, 1121,
1123 <u>and</u>[,]
1124   for the detection and/or identification of the *vanAB* resistance genes;

1103, 1104,
1109 <u>and</u>[,]
1110   for the detection and/or identification of the *vanC1* resistance gene;

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1105, 1106,
1107 and[,]
1108   for the detection and/or identification of the *vanC2* and *vanC3* resistance genes;

1097, 1098,
1099, 1100,
1101 and[,]
1102   for the detection and/or identification of the *vanC1, vanC2* and *vanC3* resistance genes;

1150, 1153,
1154 and[,]
1155   for the detection and/or identification of the *vanAXY* resistance genes;

1094, 1125,
1126, 1127,
1128, 1129,
1130, 1131,
1132, 1133,
1134, 1135,
1192, 1193,
1194, 1195,
1196, 1197,
1214, 1216,
1217, 1218,
1219, 1220,
2015, 2016,
2017, 2018,
2019, 2020,
2021, 2022,
2023, 2024,
2025, 2026,
2027, 2028,
2029, 2030,
2031, 2032,
2033, 2034,
2035, 2036,
2037, 2038
and[,] 2039   for the detection and/or identification of the *S. pneumoniae pbp1a* gene;

1142, 1143,
1144 and[,]
1145   for the detection and/or identification of the *S. pneumoniae pbp2b* gene;

1146, 1147,
1148 and[,]
1149   for the detection and/or identification of the *S. pneumoniae pbp2x* gene;

1177 and[,]
1231   for the detection and/or identification of the *mecA* resistance gene;

1290, 1291,
1292, 1293,
1294, 1295,
1296, 1297,
1298, 1333,
1334, 1335,
1340, 1341,
1936, 1937,
1940, 1942,
1943, 1945,
1946, 1947,
1948, 1949,
2040, 2041,
2042, 2043,
2250 and[,]
2251   for the detection and/or identification of the *gyrA* resistance gene;
1301, 1302,
1303, 1304,
1305 and[,]
1306   for the detection and/or identification of the *gyrB* resistance gene;
1308, 1309,
1310, 1311,
1312, 1313,
1314, 1315,
1316, 1317,
1318, 1319,
1336, 1337,
1338, 1339,
1342, 1343,
1934, 1935,
1938, 1939,
1941, 1944,
1950, 1951,
1952, 1953,
1955, 2044,
2045 and[,]
2046   for the detection and/or identification of the *parC* resistance gene ;
1322, 1323,
1324, 1325,
1326 and[,]
1327   for the detection and/or identification of the *parE* resistance gene;
1344, 1345,
1346 and[,]
1347   for the detection and/or identification of the *aac(2')-Ia* resistance gene;
1349 and[,]

1350 1352, 1353, 1354 <u>and</u>[,]	for the detection and/or identification of the *aac(3')-Ib* resistance gene<u>;</u>
1355 1357, 1358, 1359 <u>and</u>[,]	for the detection and/or identification of the *aac(3')-IIb* resistance gene<u>;</u>
1360 1362, 1363, 1364 <u>and</u>[,]	for the detection and/or identification of the *aac(3')-IVa* resistance gene<u>;</u>
1365 1367, 1368, 1369 <u>and</u>[,]	for the detection and/or identification of the *aac(3')-VIa* resistance gene<u>;</u>
1370 1372, 1373, 1374 <u>and</u>[,]	for the detection and/or identification of the *aac(6')-Ia* resistance gene<u>;</u>
1375 1377, 1378, 1379 <u>and</u>[,]	for the detection and/or identification of the *aac(6')-Ic* resistance gene<u>;</u>
1380 1382, 1383, 1384 <u>and</u>[,]	for the detection and/or identification of the *ant(3')-Ia* resistance gene<u>;</u>
1385 1387, 1388, 1389 <u>and</u>[,]	for the detection and/or identification of the *ant(4')-Ia* resistance gene<u>;</u>
1390 1392, 1393, 1394 <u>and</u>[,]	for the detection and/or identification of the *aph(3')-Ia* resistance gene<u>;</u>
1395 1397, 1398, 1399 <u>and</u>[,]	for the detection and/or identification of the *aph(3')-IIa* resistance gene<u>;</u>
1400	for the detection and/or identification of the *aph(3')-IIIa* resistance gene<u>;</u>
1402, 1403, 1404, 1405 <u>and</u>[,] 2252	for the detection and/or identification of the *aph(3')-VIa* resistance gene<u>;</u>
1407, 1408, 1409 <u>and</u> 1410	for the detection and/or identification of the *blaCARB* resistance gene<u>s;</u>
1412, 1413, 1414 <u>and</u>[,] 1415	for the detection and/or identification of the blaCMY-2 resistance gene<u>;</u>
1417 <u>and</u>[,] 1418	for the detection and/or identification of the *blaCTX-M-1* and *blaCTX-M-2* resistance gene<u>s;</u>
1419, 1420,	

1421 and[,]
1422   for the detection and/or identification of the *blaCTX-M-1* resistance
                      gene;

1424, 1425,
1426 and[,]
1427   for the detection and/or identification of the *blaCTX-M-2* resistance
                      gene;

1429, 1430,
1431 and[,]
1432   for the detection and/or identification of the *blaIMP* resistance genes;

1434 and[,]
1435   for the detection and/or identification of the *blaOXA2* resistance gene;

1436 and[,]
1437   for the detection and/or identification of the *blaOXA10* resistance gene;

1440 and[,]
1441   for the detection and/or identification of the *blaPER-1* resistance gene;

1443 and[,]
1444   for the detection and/or identification of the *blaPER-2* resistance gene;

1446, 1447,
1448 and[,]
1449   for the detection and/or identification of the *blaPER-1* and *blaPER -2*
                      resistance genes;

1450 and[,]
1451   for the detection and/or identification of the *dfrA* resistance gene;

1453, 1454,
1455 and[,]
1456   for the detection and/or identification of the *dhfrIa* and *dhfrXV*
                      resistance genes;

1457, 1458,
1459, 1460
and[,] 2253   for the detection and/or identification of the *dhfrIa* resistance gene;

1462, 1463,
1464 and[,]
1465   for the detection and/or identification of the *dhfrIb* and *dhfrV* resistance
                      genes;

1466, 1467,
1468 and[,]
1469   for the detection and/or identification of the *dhfrIb* resistance gene;

1471, 1472,
1473 and[,]
1474   for the detection and/or identification of the *dhfrV* resistance gene;

1476, 1477,
1478 and[,]
1479   for the detection and/or identification of the *dhfrVI* resistance gene;

1481, 1482,

1483 and[,]
1484   for the detection and/or identification of the *dhfrVII* and *dhfrXVII* resistance genes;

1485, 1486,
1487 and[,]
1488   for the detection and/or identification of the *dhfrVII* resistance gene;

1490, 1491,
1492 and[,]
1493   for the detection and/or identification of the *dhfrVIII* resistance gene;

1495, 1496,
1497 and[,]
1498   for the detection and/or identification of the *dhfrIX* resistance gene;

1500, 1501,
1502 and[,]
1503   for the detection and/or identification of the *dhfrXII* resistance gene;

1505 and[,]
1506   for the detection and/or identification of the *dhfrXIII* resistance gene;

1508, 1509,
1510 and[,]
1511   for the detection and/or identification of the *dhfrXV* resistance gene;

1513, 1514,
1515 and[,]
1516   for the detection and/or identification of the *dhfrXVII* resistance gene;

1528 and[,]
1529   for the detection and/or identification of the *ereA* and *ereA2* resistance genes;

1531, 1532,
1533 and[,]
1534   for the detection and/or identification of the *ereB* resistance gene;

1536, 1537,
1538 and[,]
1539   for the detection and/or identification of the *linA* and *linA'* resistance genes;

1541, 1542,
1543 and[,]
1544   for the detection and/or identification of the *linB* resistance gene;

1546 and[,]
1547   for the detection and/or identification of the *mefA* resistance gene;

1549 and[,]
1550   for the detection and/or identification of the *mefE* resistance gene;

1552, 1553,
1554 and[,]
1555   for the detection and/or identification of the *mefA* and *mefE* resistance genes;

1556, 1557,

1558 <u>and</u>[,] 1559	for the detection and/or identification of the *mphA* and *mphK* resistance genes<u>;</u>
1581, 1582, 1583 <u>and</u>[,] 1584	for the detection and/or identification of the *satG* resistance gene<u>;</u>
1586, 1587, 1588, 1589 <u>and</u>[,] 2254	for the detection and/or identification of the *tetM* resistance gene<u>;</u>
1591, 1592, 1593 <u>and</u>[,] 2297	for the detection and/or identification of the *vanD* resistance gene<u>;</u>
1595, 1596, 1597 <u>and</u>[,] 1598	for the detection and/or identification of the *vanE* resistance gene<u>;</u>
1609, 1610, 1611 <u>and</u>[,] 1612	for the detection and/or identification of the *vatB* resistance gene<u>;</u>
1614, 1615, 1616 <u>and</u>[,] 1617	for the detection and/or identification of the *vatC* resistance gene<u>;</u>
1619, 1620, 1621 <u>and</u>[,] 1622	for the detection and/or identification of the *vga* resistance gene<u>;</u>
1624, 1625, 1626 <u>and</u>[,] 1627	for the detection and/or identification of the *vgaB* resistance gene<u>;</u>
1629, 1630, 1631 <u>and</u>[,] 1632	for the detection and/or identification of the *vgb* and *vgh* resistance genes<u>;</u>
1634, 1635, 1636 <u>and</u>[,] 1637	for the detection and/or identification of the *vgbB* resistance gene<u>;</u>
1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897 <u>and</u>[,] 1898	for the detection and/or identification of the *blaSHV* resistance gene<u>s;</u>
1906, 1907, 1908, 1909,	

1910, 1911,
1912, 1913,
1914, 1915,
1916, 1917,
1918, 1919,
1920, 1921,
1922, 1923,
1924, 1925,
1926, 2006,
2007, 2008,
2009 and[,]
2141   for the detection and/or identification of the *blaTEM* resistance genes;
1961, 1962,
1963 and[,]
1964   for the detection and/or identification of the *sulII* resistance gene;
1966, 1967,
1968 and[,]
1969   for the detection and/or identification of the *tetB* resistance gene;
2065, 2066,
2067, 2068,
2069, 2070
and[,] 2071   for the detection and/or identification of the *rpoB* resistance gene;
2098, 2099
and[,] 2100   for the detection and/or identification of the *inhA* resistance gene;
2102, 2103
and[,] 2104   for the detection and/or identification of the *embB* resistance gene;
2123, 2124
and[,] 2125   for the detection and/or identification of the *C. difficile cdtA* toxin gene;
2126, 2127
and[,] 2128   for the detection and/or identification of the *C. difficile cdtB* toxin gene;
2142 and[,]
2143   for the detection and/or identification of the *mupA* resistance gene;
2145 and[,]
2146   for the detection and/or identification of the *catI* resistance gene;
2148 and[,]
2149   for the detection and/or identification of the *catII* resistance gene;
2151 and[,]
2152   for the detection and/or identification of the *catIII* resistance gene;
2154 and[,]
2155   for the detection and/or identification of the *catP* resistance gene;
2157, 2158,
2160 and[,]
2161   for the detection and/or identification of the *cat* resistance gene; and
2163 and[,]
2164   for the detection and/or identification of the *ppflo*-like resistance gene.

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22. (Once amended) A composition of matter comprising:

(a)   (i) a specific nucleic acid as set forth in claim 10 [or 11], which is specific for a bacterial, fungal or parasitical species, genus, family, or group, or (ii) a nucleic acid as set forth in claim 8 [or 9] which is universal for a bacterium, fungus or parasite, or both specific and universal nucleic acids; and [, in conjunction with]

(b)   a nucleic acid sequence of at least 12 nucleotides capable of hybridizing with an antimicrobial agent resistance gene and/or toxin gene.

23. (Once amended) A composition as set forth in claim 22, wherein the nucleic acid capable of hybridizing with an antimicrobial agent resistance gene and/or toxin gene is any one of:

1078, 1079 and[,] 1085   for the detection and/or identification of the *E. coli* Shiga-like toxin 2 (*stx$_2$*) gene;

1080, 1081, 1084 and[,] 2012   for the detection and/or identification of the *E. coli* Shiga-like toxin 1 (*stx$_1$*) gene;

1082 and[,] 1083   for the detection and/or identification of *E. coli* Shiga-like toxins 1 and 2 (*stx*) genes;

1086, 1087, 1088, 1089, 1090, 1091, 1092, 1170, 1239, 1240 and[,] 2292   for the detection and/or identification of the *vanA* resistance gene;

1095, 1096, 1171, 1241, 2294 and[,] 2295   for the detection and/or identification of the *vanB* resistance gene;

1111, 1112, 1113, 1114, 1115, 1116, 1118, 1119, 1120, 1121, 1123 and[,] 1124   for the detection and/or identification of the *vanAB* resistance genes;

1103, 1104, 1109 and[,] 1110   for the detection and/or identification of the *vanC1* resistance gene;

1105, 1106, 1107 and[,]

1108	for the detection and/or identification of the *vanC2* and *vanC3* resistance genes;
1097, 1098, 1099, 1100, 1101 and[,] 1102	for the detection and/or identification of the *vanC1, vanC2* and *vanC3* resistance genes;
1150, 1153, 1154 and[,] 1155	for the detection and/or identification of the *vanAXY* resistance genes;
1094, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1192, 1193, 1194, 1195, 1196, 1197, 1214, 1216, 1217, 1218, 1219, 1220, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038 and[,] 2039	for the detection and/or identification of the *S. pneumoniae pbp1a* gene;
1142, 1143, 1144 and[,] 1145	for the detection and/or identification of the *S. pneumoniae pbp2b* gene;
1146, 1147, 1148 and[,] 1149	for the detection and/or identification of the *S. pneumoniae pbp2x* gene;
1177 and[,] 1231	for the detection and/or identification of the *mecA* resistance gene;
1290, 1291, 1292, 1293,	

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1294, 1295,
1296, 1297,
1298, 1333,
1334, 1335,
1340, 1341,
1936, 1937,
1940, 1942,
1943, 1945,
1946, 1947,
1948, 1949,
2040, 2041,
2042, 2043,
2250 and[,]
2251   for the detection and/or identification of the *gyrA* resistance gene;
1301, 1302,
1303, 1304,
1305 and[,]
1306   for the detection and/or identification of the *gyrB* resistance gene;
1308, 1309,
1310, 1311,
1312, 1313,
1314, 1315,
1316, 1317,
1318, 1319,
1336, 1337,
1338, 1339,
1342, 1343,
1934, 1935,
1938, 1939,
1941, 1944,
1950, 1951,
1952, 1953,
1955, 2044,
2045 and[,]
2046   for the detection and/or identification of the *parC* resistance gene;
1322, 1323,
1324, 1325,
1326 and[,]
1327   for the detection and/or identification of the *parE* resistance gene;
1344, 1345,
1346 and[,]
1347   for the detection and/or identification of the *aac(2')-Ia* resistance gene;
1349 and[,]
1350   for the detection and/or identification of the *aac(3')-Ib* resistance gene;
1352, 1353,

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1354 and[,]

1355   for the detection and/or identification of the *aac(3')-IIb* resistance gene;

1357, 1358,
1359 and[,]

1360   for the detection and/or identification of the *aac(3')-IVa* resistance gene;

1362, 1363,
1364 and[,]

1365   for the detection and/or identification of the *aac(3')-VIa* resistance gene;

1367, 1368,
1369 and[,]

1370   for the detection and/or identification of the *aac(6')-Ia* resistance gene;

1372, 1373,
1374 and[,]

1375   for the detection and/or identification of the *aac(6')-Ic* resistance gene;

1377, 1378,
1379 and[,]

1380   for the detection and/or identification of the *ant(3')-Ia* resistance gene;

1382, 1383,
1384 and[,]

1385   for the detection and/or identification of the *ant(4')-Ia* resistance gene;

1387, 1388,
1389 and[,]

1390   for the detection and/or identification of the *aph(3')-Ia* resistance gene;

1392, 1393,
1394 and[,]

1395   for the detection and/or identification of the *aph(3')-IIa* resistance gene;

1397, 1398,
1399 and[,]

1400   for the detection and/or identification of the *aph(3')-IIIa* resistance gene;

1402, 1403,
1404, 1405
and[,] 2252   for the detection and/or identification of the *aph(3')-VIa* resistance gene;

1407, 1408,
1409 and[,]

1410   for the detection and/or identification of the *blaCARB* resistance gene;

1412, 1413,
1414 and[,]

1415   for the detection and/or identification of the blaCMY-2 resistance gene;

1417 and[,]

1418   for the detection and/or identification of the *blaCTX-M-1* and *blaCTX-M -2* resistance genes;

1419, 1420,
1421 and[,]

1422   for the detection and/or identification of the *blaCTX-M-1* resistance gene;

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1424, 1425,
1426 and[,]
1427   for the detection and/or identification of the *blaCTX-M-2* resistance gene;

1429, 1430,
1431 and[,]
1432   for the detection and/or identification of the *blaIMP* resistance gene;

1434 and[,]
1435   for the detection and/or identification of the *blaOXA2* resistance gene;

1436 and[,]
1437   for the detection and/or identification of the *blaOXA10* resistance gene;

1440 and[,]
1441   for the detection and/or identification of the *blaPER-1* resistance gene;

1443 and[,]
1444   for the detection and/or identification of the *blaPER-2* resistance gene;

1446, 1447,
1448 and[,]
1449   for the detection and/or identification of the *blaPER-1* and *blaPER -2* resistance genes;

1450 and[,]
1451   for the detection and/or identification of the *dfrA* resistance gene;

1453, 1454,
1455 and[,]
1456   for the detection and/or identification of the *dhfrIa* and *dhfrXV* resistance genes;

1457, 1458,
1459, 1460
and[,] 2253   for the detection and/or identification of the *dhfrIa* resistance gene;

1462, 1463,
1464 and[,]
1465   for the detection and/or identification of the *dhfrIb* and *dhfrV* resistance genes;

1466, 1467,
1468 and[,]
1469   for the detection and/or identification of the *dhfrIb* resistance gene;

1471, 1472,
1473 and[,]
1474   for the detection and/or identification of the *dhfrV* resistance gene;

1476, 1477,
1478 and[,]
1479   for the detection and/or identification of the *dhfrVI* resistance gene;

1481, 1482,
1483 and[,]
1484   for the detection and/or identification of the *dhfrVII* and *dhfrXVII* resistance genes;

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1485, 1486, 1487 and[,] 1488	for the detection and/or identification of the *dhfrVII* resistance gene;
1490, 1491, 1492 and[,] 1493	for the detection and/or identification of the *dhfrVIII* resistance gene;
1495, 1496, 1497 and[,] 1498	for the detection and/or identification of the *dhfrIX* resistance gene;
1500, 1501, 1502 and[,] 1503	for the detection and/or identification of the *dhfrXII* resistance gene;
1505 and[,] 1506	for the detection and/or identification of the *dhfrXIII* resistance gene;
1508, 1509, 1510 and[,] 1511	for the detection and/or identification of the *dhfrXV* resistance gene;
1513, 1514, 1515 and[,] 1516	for the detection and/or identification of the *dhfrXVII* resistance gene;
1528 and[,] 1529	for the detection and/or identification of the *ereA* and *ereA2* resistance genes;
1531, 1532, 1533 and[,] 1534	for the detection and/or identification of the *ereB* resistance gene;
1536, 1537, 1538 and[,] 1539	for the detection and/or identification of the *linA* and *linA'* resistance genes;
1541, 1542, 1543 and[,] 1544	for the detection and/or identification of the *linB* resistance gene;
1546 and[,] 1547	for the detection and/or identification of the *mefA* resistance gene;
1549 and[,] 1550	for the detection and/or identification of the *mefE* resistance gene;
1552, 1553, 1554 and[,] 1555	for the detection and/or identification of the *mefA* and *mefE* resistance genes;
1556, 1557, 1558 and[,] 1559	for the detection and/or identification of the *mphA* and *mphK* resistance genes;

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1581, 1582,
1583 and[,]
1584   for the detection and/or identification of the *satG* resistance gene;

1586, 1587,
1588, 1589
and[,] 2254   for the detection and/or identification of the *tetM* resistance gene;

1591, 1592,
1593 and[,]
2297   for the detection and/or identification of the *vanD* resistance gene;

1595, 1596,
1597 and[,]
1598   for the detection and/or identification of the *vanE* resistance gene;

1609, 1610,
1611 and[,]
1612   for the detection and/or identification of the *vatB* resistance gene;

1614, 1615,
1616 and[,]
1617   for the detection and/or identification of the *vatC* resistance gene;

1619, 1620,
1621 and[,]
1622   for the detection and/or identification of the *vga* resistance gene;

1624, 1625,
1626 and[,]
1627   for the detection and/or identification of the *vgaB* resistance gene;

1629, 1630,
1631 and[,]
1632   for the detection and/or identification of the *vgb* and *vgh* resistance genes;

1634, 1635,
1636 and[,]
1637   for the detection and/or identification of the *vgbB* resistance gene;

1883, 1884,
1885, 1886,
1887, 1888,
1889, 1890,
1891, 1892,
1893, 1894,
1895, 1896,
1897 and[,]
1898   for the detection and/or identification of the *blaSHV* resistance gene;

1906, 1907,
1908, 1909,
1910, 1911,
1912, 1913,
1914, 1915,

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1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 2006, 2007, 2008, 2009 and[,] 2141	for the detection and/or identification of the *blaTEM* resistance gene;
1961, 1962, 1963 and[,] 1964	for the detection and/or identification of the *sulII* resistance gene;
1966, 1967, 1968 and[,] 1969	for the detection and/or identification of the *tetB* resistance gene;
2065, 2066, 2067, 2068, 2069, 2070 and[,] 2071	for the detection and/or identification of the *rpoB* resistance gene;
2098, 2099 and[,] 2100	for the detection and/or identification of the *inhA* resistance gene;
2102, 2103 and[,] 2104	for the detection and/or identification of the *embB* resistance gene;
2123, 2124 and[,] 2125	for the detection and/or identification of the *C. difficile cdtA* toxin gene;
2126, 2127 and[,] 2128	for the detection and/or identification of the *C. difficile cdtB* toxin gene;
2142 and[,] 2143	for the detection and/or identification of the *mupA* resistance gene;
2145 and[,] 2146	for the detection and/or identification of the *catI* resistance gene;
2148 and[,] 2149	for the detection and/or identification of the *catII* resistance gene;
2151 and[,] 2152	for the detection and/or identification of the *catIII* resistance gene;
2154 and[,] 2155	for the detection and/or identification of the *catP* resistance gene;
2157, 2158, 2160 and[,] 2161	for the detection and/or identification of the *cat* resistance gene; and
2163 and[,] 2164	for the detection and/or identification of the *ppflo*-like resistance gene.

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24. (Once amended) An isolated [A] nucleic acid having at least 12 nucleotides in length, capable of hybridizing with the nucleotide sequence of any one of the *tuf* sequences defined in SEQ ID NOs.: 1-73, 75-241, 399-457, 498-529, 612-618, 621-624, 675, 677, 717-736, 779-792, 840-855, 865, 868-888, 897-910, 932, 967-989, 992, 1266-1287, 1518-1526, 1561-1575, 1578-1580, 1662-1664, 1666-1667, 1669-1670, 1673-1683, 1685-1689, 1786-1843, 1874-1881, 1956-1960, 2183-2185, 2187-2188, 2193-2201, 2214-2249 and[,] 2255-2272.

25. (Once amended) An isolated [A] nucleic acid having at least 12 nucleotides in length, capable of hybridizing with the nucleotide sequence of any one of the *atpD* sequences defined in SEQ ID NOs.: 242-270, 272-398, 458-497, 530-538, 663, 667, 673, 674, 676, 678-680, 737-778, 827-832, 834-839, 856-862, 866-867, 889-896, 929-931, 941-966, 1245-1254, 1256-1265, 1527, 1576-1577, 1600-1604, 1638-1647, 1649-1660, 1671, 1684, 1844-1848, 1849-1865 and[,] 2189-2192.

26. (Once amended) An isolated [A] nucleic acid having at least 12 nucleotides in length, capable of hybridizing with the nucleotide sequence of any one of the *recA* sequences defined in SEQ ID NOs.: 990-991, 1003, 1288-1289, 1714, 1756-1763, 1866-1873 and 2202-2212.

27. (Once amended) An isolated [A] nucleic acid having at least 12 nucleotides in length, capable of selectively hybridizing with the nucleotide sequence of any one of the antimicrobial agent resistance gene sequences defined in SEQ ID NOs.: 1004-1075, 1255, 1607-1608, 1648, 1764-1785, 2013-2014, 2056-2064 and[,] 2273-2280.

29. (Once amended) A method for the detection and/or identification of microbial species in a test sample comprising:
        (a)   contacting [The use of] a nucleic acid having at least 12 nucleotides in length capable of hybridizing with the nucleic acids of any one of the antimicrobial agent resistance genes sequences defined in SEQ ID NOs.: 1004-1048, 1058-1075 [1004-1075], 1255, 1607-1608, 1648, 1764-1785, 2013-2014, 2056-2064 and[,] 2273-2280 with a test sample; and
        (b)   testing for hybridization of said nucleic acid to any of said resistance genes [for the detection and identification of microbial species].

30. (Once amended) A method for the detection and identification of microbial species comprising:
        (a)   contacting [The use of] a nucleic acid having at least 12 nucleotides in length capable of hybridizing with the nucleic acids of any one of the toxin genes defined in SEQ ID NOs.: 1078-1085, 2012 and 2123 to 2128 with a test sample; and
        (b)   testing for hybridization of said nucleic acid to any of said toxin genes [for the detection and identification of microbial species].

33. (Once amended) A repertory of nucleic acid sequences derived from the repertory of claim 31[or 32].

34. (Once amended) <u>An isolated</u> [A] nucleic acid used for the specific and ubiquitous detection and for identification of *Streptococcus pneumoniae*, which is derived from the repertory of claim 31.

35. (Once amended) <u>An isolated</u> [A] nucleic acid as set forth in claim 34 which has a nucleic acid sequence of at least 12 nucleotides capable of hybridizing with said any *Streptococcus pneumoniae* and with any one of SEQ ID NOs.: 1184 to 1187.

36. (Once amended) <u>An isolated</u> [A] nucleic acid as set forth in claim 34, which has a nucleic acid sequence of at least 12 nucleotides capable of hybridizing with the nucleic acids of *Streptococcus pneumoniae* and with any one of the nucleic acids having SEQ ID NOs.: [1179,] 1180, 1181 <u>and</u>[,] 1182.

37. A peptide derived from the translation of the nucleic acids from the repertory obtained from the method of <u>claim 45</u> [claim 1 , 31 or 32], or of the nucleic acids defined in [any one of] <u>claim 24</u> [claims 24 to 27, 35 and 36].

39. A recombinant vector comprising a nucleic acid obtained from the method of <u>claim 45</u> [claim 1 , 31 or 32,] or from the nucleic acids defined in [any one of] <u>claim 24</u> [claims 24 to 27, 35 and 36].

41. (Once amended) A recombinant host cell comprising the recombinant vector defined in claim 39 [or 40].

42. (Once amended) The use of the nucleic acid sequences defined in claim 28 [or 33, or obtained from the method of claim 2] and of the protein sequences deduced from said nucleic acid sequences, for the design of a therapeutic agent effective against said microorganisms.

Claims 45-48 were added.